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AUTHOR Kerr, Michael; And Others
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ABSTRACT

The Kaufman Assessment Battery for Children (K-ABC) is purported to be less culturally biased than other, traditional measures of intellectual ability. The present study was designed to investigate three specific research questions: (1) Are there overall performance differences between Native American and non-Native American children on the WISC-R and K-ABC? (2) Do the relationships among K-ABC and WISC-R subtests differ between Native American and non-Native American children? (3) Using the standard criteria for special education placement, do the WISC-R and K-ABC scores lead to significantly different classifications? Assessment differences between the Wechsler Intelligence Scale for Children-Revised (WISC-R) and the K-ABC were investigated with samples of 47 Native American and 45 non-Native American children between 6 and 12 years of age. All of the children had been referred for assessment, based on low achievement in reading or all academic areas. Overall differences between the two groups were minor, in terms of the global scores for both tests. When the cutting scores for placement decisions were examined, significant differnces between the two tests were found only for the Native American group. It was concluded that the findings warrant judicious use of either test by itself when making placement decisions regarding Native American children.
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Native American and Non-Native American Performance Differences on the WISC-R and K-ABC

Michael Kerr

Oklahoma State University

Elizabeth Mitchell

Logan County Guidance Center

Paul Warden

Oklahoma State University

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Abstract

The Kaufman Assessment Battery for Children (K-ABC) is purported to be less culturally biased than other, traditional measures of intellectual ability. Assessment differences between the WISC-R and the K-ABC were investigated with samples of 47 Native American and 45 non-Native American children between 6 and 12 years of age. All of the children had been referred for assessment, based on low achievement in reading or all academic areas. Overall differences between the two groups were minor, in terms of the global scores for both tests. When the cutting scores for placement decisions were examined, significant differences between the two tests were found only for the Native American group. It was conluded that the findings warrant judicious use of either test by itself when making placement decisions regarding Native American children.

K-ABC and WISC-R Assessment Differences Between Native American and Non-Native American Children

In educational practice, intelligence tests are widely used as a major criterion for special class placement. In past decades, the use of intelligence test results for special class placement has been the domain of educators, psychologists and other involved professionals. In recent years, the public's growing awareness of the impact of IQ scores on the lives of individual children has led to research on cultural bias in testing and attempts to legally define test fairness.

In the Larry P. vs Riles case (Cordes, 1984), a federal court ruling established the legal need for IQ tests to be shown valid and culturally unbiased for their use in determining special class placement, especially among minority students. With this ruling, school psychologists and other professional educators have been given notice that they must be sensitive to cultural issues when testing minority children.

Native American children have historically been placed in special education classes in

disproportionately larger numbers than their nonminority peers. Studies of Native American children's intellectual abilities , as assessed by the WPPSI, WISC (Cundick, 1970; Turner & Penfold, 1952), and WISC-R (Pray, 1979; Hynd, Quackenbush, Kramer, Conner & Weed, 1980) have arrived at similar conclusions. Native American children consistently score about the same as nonminority children on the performance measures of these tests, yet score significantly lower on the verbal portions.

The issue of cultural test bias for the WISC-R has been studied with Navajo (Mishra, 1982) and Papago (Reschly & Ross-Reynolds, 1982) children, as well as other minority groups. The study with Navajo children contended that about 19% of the items on three verbal subtests were culturally biased. The study with Papago children suggested cultural bias in about 33% of the verbal scale items. Other studies have found significantly lower reliability for the WISC-R among Native Americans (Elliott, Piersel & Witt, 1982) and no significant differences between Native American and nonminority children in performance on a

neuropsychological battery (Golden, Raraback & Pray, 1977).

The Kaufman Assessment Battery for Children (K-ABC; Kaufman & Kaufman, 1983) is a relatively new measure of children's intellectual ability. Unlike the WISC-R, which emphasizes performance in terms of a product, the K-ABC emphasizes performance as a process; a different philosophic basis for assessing intelligence. The Kaufmans (1983) state that the K-ABC has certain advantages for minority children, especially where educational diagnosis and placement are involved.

Because the K-ABC may enjoy widespread use as an IQ instrument for making placement decisions, it is important to investigate the differences between the Wechsler scales and the K-ABC among minority and nonminority children. This effort is particularly important if, as its authors claim, the K-ABC is a more unbiased measure of intellectual ability than the WISC-R.

The present study was designed to investigate three specific research questions; 1) Are there overall performance differences between Native American and non-Native American children on the WISC-R and K-ABC ?,

2) Do the interrelationships among K-ABC and WISC-R subtests differ between Native American and non-Native American children?, and 3) Using the standard criteria for special education placement, do the WISC-R and K-ABC scores lead to significantly different classification decisions?

Method

Subjects

The sample for this study consisted of 92 children from 6 to 12 years of age. All of the children had been referred to a Regional Educational Service Center (RESC) for psychoeducational assessment, based on their low achievement in reading or across all academic areas. The sample was divided into 47 Native American children (30 Cherokee and 17 Kiowa) and 45 non-Native Americans. All of the children were from rural areas in Oklahoma.

Instruments

The WISC-R and the K-ABC were both used as measures of children's intellectual abilities; both have demonstrated reliability and validity of various types. All of the children had been given the WISC-R as part

of the standard RESC evaluation. The K-ABC was given to the children at the beginning of the study.

In addition to the global and subtest scores from the WISC-R and K-ABC, two additional scores were calculated. These scores represent criteria commonly used for diagnosis or special class placement with the WISC-R. They are referred to as placement and discrepancy scores.

Placement scores are based on full scale IQ scores. Each child was given a score in a range, as follows; group 1 = less than 75, group 2 = 75 to 80, and group 3 = 81 or higher. Discrepancy scores were based on the difference between verbal and performance (WISC-R) or sequential and simultaneous (K-ABC) subscores. The criteria used were less than 12, 12 to 15, and more than 15 points. The upper limit for K-ABC scores was 16 instead of 15, as suggested by the test's manual.

Results

In order to determine whether Native American and non-Native American children differed significantly on global IQ scores, a oneway MANOVA was conducted with

the three global scores from the WISC-R and K-ABC as dependent variables. No significant differences were found.

A second MANOVA was conducted to test for group differences on the eight subtests of the K-ABC and the ten subtests of the WISC-R. Statistically significant differences were found for two of the WISC-R subtests, Vocabulary and Comprehension. For both subtests, the mean scores for Native American children were significantly lower than those for non-Native American children (see Table 1).

Insert Table 1 about here

To test for differences between the two groups in terms of the interrelationships of the three global scores for both IQ tests, a Pearson correlation matrix was calculated (see Table 2) and t-tests for

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Insert Table 2 about here

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significant differences between correlations were conducted. None of the relationships among test scores

were significantly different between groups.

The first test for significant group differences in discrepancy scores consisted of a 2 X 2 (group by test) repeated measures ANOVA . The difference between tests was statistically significant , $F(1, 34) = 21.7$, $p<.01$, but there were no significant differences between groups. The results of this analysis showed that the average discrepancy scores for the combined groups were about 9 points higher for the WISC-R (9.01) than the K-ABC (.08).

A subsequent, overall analysis for test differences on discrepancy scores was conducted as a Wilcoxon test for differences among matched pairs. In this instance, the levels of cutting scores for the WISC-R and the K-ABC were compared. The resulting z value (- 2.9) was statistically significant ($p<.01$), again showing differences between the two tests. The same test (Wilcoxon) was conducted again for the two groups independently. The z value (-2.9) for the Native American group showed significant ($p<.01$) differences between the discrepancy scores for the two tests. The z (-1.1) for the non-Native American group was nonsignificant.

The overall tests for group differences on placement scores were conducted as two 2 X 3 (group by placement ranges) chi-squares, one for each IQ test. Both of the resulting chi-square values (2.5 and 3.4) were nonsignificant, showing no group differences on the overall distribution of placement scores for either test.

In order to determine whether placement decisions based on scores from one test would differ from those based on the other test, a Wilcoxon test for matched pairs was conducted and the z value (-2.11) was statistically significant ($p<.05$). Again, separate Wilcoxon tests were conducted to see if the tests differed for both groups. The z value (-2.8) for the Native American group was significant ($p<.01$), indicating different placement decisions between the two tests. The z value (-.25) for non-Native Americans was not significant.

Discussion

The results of the analyses for the first research question were mixed. There were no significant differences between the two groups of children on any of the global IQ scores. However, there were two

instances where the groups differed on specific verbal subtests of the WISC-R, and this finding is consistent with previous studies (e.g ., Pray, 1979) which showed significantly lower verbal scores for Native American children.

The results of the correlational analysis used to test the second research question did not result in any significant group differences in terms of the interrelationships among global scores on the two tests. It was also observed that the Native American and non-Native American groups did not differ from each other in the overall distribution of placement and discrepancy scores.

The analyses used to answer the third research question showed consistent, significant differences between the two tests in terms of diagnostic scores for the two groups. The results clearly showed that, for Native American children, placement and discrepancy scores on the K-ABC would result in different decisions than the equivalent scores from the WISC-R. The trend found for both placement and discrepancy scores was that the WISC-R results tend to place more of the Native American children in groups of lower

intellectual ability. At the same time, no significant differences in the diagnostic scores of the two tests were observed for the non-Native American children.

In summary, the present study resulted in two important findings. First, the overall differences between groups in terms of global scores on the two tests were minor. The usual finding of overall lower verbal scores for Native American children was not evident, except as differences on two WISC-R subtests. These results are probably due to the fact that both groups of children had been referred for academic problems and represent neither Native American nor non-Native American children in general.

The second major finding is of greater importance for placement decisions made on the basis of IQ scores. In this instance, it was observed that the placement decisions for Native American students would differ significantly depending on which test was used, while placement decisions for non-Native American children did not differ across tests.

It is encouraging that two major IQ tests show no overall differences between the two groups of referred

children. However, the differences in diagnostic scores for Native American children raise serious questions for school psychologists, special educators and others making decisions based on IQ test scores. Until further research can determine why the tests result in different placement criteria, they should be used cautiously and with substantial non-test evidence when placing referred Native American children.

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Table 1

Means and Std. Deviations for WISC-R Vocabulary and Comprehension Subtests

Subtest	Means (S.D.)		F Value (df)
	Nat. Am.	non-Nat. Am.	
Vocabulary	7.41 (3.20)	9.00 (2.66)	6.25 * (1, 84)
Comprehension	7.80 (2.93)	9.33 (2.69)	6.41 * (1, 84)

*$p < .01$.

Table 2

Interrelationships Among WISC-R and K-ABC Global Scores for Native American and Non-Native American Groups

Scores	K-ABC			WISC-R		
	Seq.	Sim.	Comp.	Verb.	Perf.	Comp.
Seq.	-	.42	.81	.47	.21	.40
Sim.	.55	-	.86	.57	.65	.69
Comp.	.83	.92	-	.61	.56	.67
Verb.	.39	.56	.53	-	.54	.89
Perf.	.34	.65	.59	.41	-	.85
Comp.	.44	.71	.66	.83	.84	-

Note. Coefficients for Native Americans (n = 44) are above the diagonal, with those for non-Native Americans (n = 41) below it.